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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/870,531 | 05/31/2001 | Peter J. Brofman | FIS9-2000 -0412-US1 | 1347 |

7590 02/04/2003

Graham S. Jones, II
42 Barnard Avenue
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[REDACTED] EXAMINER

MITCHELL, JAMES M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2827 | |

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/870,531 | BROFMAN ET AL. | |
| | Examiner | Art Unit | |
| | James Mitchell | 2827 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 25 October 2002.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 17-24 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____ .
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Election

Claims 17-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No.5. Applicant contends that examiner's assertion of forming the product without a temporary bonding step is speculative and that the subject matter of the claims are intertwined. First examiner respectively notes to applicant that by merely taking a position that examiner's assertion is speculative does not shift the burden to the examiner to prove his assertion absent evidence by applicant to the contrary. Furthermore, because applicant's argument is based on a preliminary step involving a wafer holder that does not exist and nonessential as evidenced by its failure to be claimed in its product, the argument is deemed unpersuasive. The requirement set forth in chapter 800 of the M.P.E.P has been met and the restriction is made final.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in–
 - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
 - (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-3 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Siniaguine (US 6,184,060).

Siniaguine (Fig 2,7, 8) discloses a method comprising starting with a wafer (104,110) composed of silicon and a reversed surface that which are planar as the base for a silicon based package, *SBP*, forming an interconnection structure including multiplayer conductor patterns (Column 2; Lines 27-29) over via and dielectrics, forming a temporary bond between the *SBP* and an inherent rigid wafer holder (Column 1, Lines 52-53), thinning the wafer to a desired thickness (Column 2, Lines 37) to form an ultra thin silicon wafer, *UTSW* (110, Fig 8A), forming via holes (130) which extend through the *UTSW* such that the base , and forming metallization or metal vias (150) in the via holes by bonding the metallization in the via extending through the *UTSW*; forming capture pads (180) prior to thinning the wafer (shown in Fig 7); with the capture pads being formed on the first surface and then forming the interconnection structure over the first surface and capture pads (Fig 9); inherently providing a base for a silicon package; with via holes that extend partially through the wafer from the first surface towards the reverse surface with each via hole having a base closest to the reverse surface (Fig 7) forming a dielectric layer (140) covering the first surface of the silicon wafer and the via holes with distal portions of the dielectric being located at the bases of the via holes so that the distal ends are closed to the reverse surface and metal vias having distal end on dielectric (150C) removing distal ends of dielectric layer (Fig 8A, 140a) exposing the distal ends of the metal vias which extend through the *UTSW* (Fig (8A).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siniaguine as applied to claims 1 and 14.

Siniaguine does not appear to disclose varying the claimed order of steps such as forming capture pads then forming interconnection then forming temporary bond of a wafer holder then thinning the wafer then forming vias holes, in any case, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed sequence because applicant has not disclosed that the limitation is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical. Moreover, it is well established that, in a well known process, the order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. Ex parte Rubin 128 USPQ (PO BdPatApp 1959).

Claim 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Siniaguine as applied to claim 14 in combination with Houston et al. (US 2002/0086519).

Siniaguine does not appear to disclose forming a blanket of metal over dielectric layers including via holes followed by planarizing the blanket down to the surface of the dielectric layer forming metal vias in the via holes.

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Houston (Fig 1D,E) utilizes a method of forming a blanket of metal (24) over dielectric layers (14) including via holes (20) followed by planarizing the blanket down to the surface of the dielectric layer (par.0024).

It would have been obvious to one of ordinary skill in the art to form metal in the vias of Siniaguine in the alternate process of forming a blanket of metal over dielectric layers including via holes followed by planarizing the blanket down to the surface of the dielectric layer in order to form a metal vias that is able to be coupled to an interconnect element as taught by Houston (Par. 0024).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


jmm
January 27, 2003


Ex. JOHN B. VARGAS
09/2827